



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,513	09/09/2003	Yuhong Wang	58970.010500	1783
34018	7590	12/15/2005		
GREENBERG TRAURIG, LLP 77 WEST WACKER DRIVE SUITE 2500 CHICAGO, IL 60601-1732				
			EXAMINER GATES, ERIC ANDREW	
			ART UNIT 3722	PAPER NUMBER

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/658,513

Applicant(s)

WANG ET AL.

Examiner

Eric A. Gates

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. This office action is in response to applicant's amendment filed on 1 November 2005.

### *Election/Restrictions*

2. Applicant's election without traverse of claims 1-11 in the reply filed on 1 November 2005 is acknowledged.
3. Claims 12-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1 November 2005.

### *Drawings*

4. Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

Art Unit: 3722

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

5. The claims are objected to because they include reference characters that are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Emmons (U.S. Patent 2,652,083).

8. Regarding claim 1, Emmons discloses a twist drill for forming holes in or through a workpiece, having a longitudinal axis around which the twist drill is rotated and in the direction of which the twist drill is advanced into the workpiece, and two transverse axes

Art Unit: 3722

disposed perpendicular to each other and to the longitudinal axis, comprising: a shank 1, for enabling the twist drill to be mounted to a driving device; a body 2 emanating from, and coaxial with the shank, the body having a radius; at least one flute 4 extending helically along the body; at least one land 5 disposed adjacent to the at least one flute; and a point structure 6, formed on an end of the body distal to the shank, the point structure being generally in the form of a brad point having an extreme tip through which the longitudinal axis of the drill passes, the point structure further having two spur structures 7 on opposite sides thereof; a cutting lip 7 on a leading edge of each of the spur structures, the drill further including planar axial relief surfaces (angle E) on trailing surfaces of the lands which intersect the cutting lips.

9. Regarding claim 2, Emmons discloses wherein the point 6 comprises a first radially outwardly disposed portion (angle B) of the at least one land angling inwardly and axially toward the shank, to a position between a peripheral portion of the body, and the longitudinal axis and a second, radially inwardly disposed portion (side of 6) of the at least one land, angling inwardly and axially away from the shank and toward the central point structure.

10. Regarding claim 3, Emmons discloses wherein the first radially outwardly disposed portion of the at least one land is defined at least in part by a leading edge angle (B minus 90 degrees) and a trailing edge angle E, wherein (B minus 90 degrees) is between 2 to 10 degrees (falls within the 5 to 25 degrees for this claim) and E is between 5 to 10 degrees (falls within the 5 to 19 degrees for this claim).

Art Unit: 3722

11. Claims 1-2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Nygard (U.S. Patent 6,857,832).

12. Regarding claim 1, Nygard discloses a twist drill for forming holes in or through a workpiece, having a longitudinal axis around which the twist drill is rotated and in the direction of which the twist drill is advanced into the workpiece, and two transverse axes disposed perpendicular to each other and to the longitudinal axis, comprising: a shank (not shown but inherent), for enabling the twist drill to be mounted to a driving device; a body (not referenced) emanating from, and coaxial with the shank, the body having a radius; at least one flute (not labeled, see Figure 2) extending helically along the body; at least one land (not labeled, see Figure 2) disposed adjacent to the at least one flute; and a point structure 2, formed on an end of the body distal to the shank, the point structure being generally in the form of a brad point having an extreme tip through which the longitudinal axis of the drill passes, the point structure further having two spur structures 3 on opposite sides thereof; a cutting lip 3 on a leading edge of each of the spur structures, the drill further including planar axial relief surfaces (angle alpha) on trailing surfaces of the lands which intersect the cutting lips.

13. Regarding claim 2, Nygard discloses wherein the point 2 comprises a first radially outwardly disposed portion (angle alpha) of the at least one land angling inwardly and axially toward the shank, to a position between a peripheral portion of the body, and the longitudinal axis and a second, radially inwardly disposed portion (angle beta) of the at least one land, angling inwardly and axially away from the shank and toward the central point structure.

Art Unit: 3722

14. Regarding claim 4, Nygard discloses wherein the second, radially inwardly disposed portion of the at least one land is defined at least in part by a point angle beta and an angle (not referenced but inherent) which represents an axial separation between the central point structure and radially outer portions of the at least one land, wherein beta is between 80 and 100 degrees, inclusive; and the (not referenced but inherent) angle measures approximately 140 degrees on Figure 2 and 153 degrees on Figure 4 (falls within the 140 to 170 degrees for this claim).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nygard in view of Crisp (U.S Patent 2,769,355).

17. Regarding claim 5, Nygard discloses the at least one flute terminating in a cutting lip disposed proximate the point; the at least one flute having a sectional configuration, in a plane perpendicular to the longitudinal axis, incorporating a leading edge, a trailing edge, a straight surface extending inwardly from the leading edge, at least to a position coplanar with a plane passing perpendicularly through the straight surface to the longitudinal axis, and a first concave curved portion, extending from an inward end of the straight surface. Nygard does not disclose a second concave curved portion,

Art Unit: 3722

extending inwardly from the trailing toward an outer edge region of the first concave curved portion, and a ridge formed by the intersection of the outer edge region of the first concave curved portion and an inner edge region of the second concave curved portion. Crisp discloses a fluted drill that has a first concave curved portion 15 and a second concave curved portion 16 that intersect at a ridge 11 for the purpose of breaking up the cut chips into small pieces. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the drill of Nygard with the concave flute portions and ridge portion of Crisp in order to have a brad type drill that makes small chips during drilling.

18. Regarding claim 6, the modified invention of Nygard discloses the invention substantially as claimed.

19. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nygard in view of Crisp as applied to claims 5 and 6 above, and further in view of Guehring et al. (U.S Patent 6,213,692).

20. Regarding claim 7, the modified invention of Nygard discloses the invention substantially as claimed, except Nygard does not disclose the ridge is in the form of a rounded bump. Guehring et al. teaches the use of grooves 18 on a drill that form ridges in the shape of rounded bumps for the purpose of breaking up the cut chips into small pieces. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the modified drill of Nygard with the rounded bumps of Guehring in order to have a brad type drill that makes small chips during drilling without having stress concentrations at the end of the ridges.



Art Unit: 3722

21. Regarding claims 8-11, the modified inventions of Nygard in claims 6 and 7 disclose the inventions substantially as claimed.

### ***Conclusion***

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references disclose drills with features relating to the claimed invention.

§

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric A. Gates whose telephone number is 571-272-5498. The examiner can normally be reached on Monday-Thursday 7:45-5:15 & alt Fridays 7:45-4:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

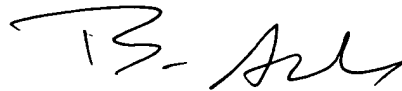
Application/Control Number: 10/658,513  
Art Unit: 3722

Page 9



Eric A. Gates  
Patent Examiner  
Art Unit 3722

EAG  
29 November 2005



BOYER D. ASHLEY  
PRIMARY EXAMINER